



UNITED NATIONS



THIRD CONFERENCE ON THE LAW OF THE SEA

Distr.
LIMITED

A/CONF.62/C.2/L.81
23 August 1974

ORIGINAL: ENGLISH

SECOND COMMITTEE

WORKING PAPER SUBMITTED BY THE DELEGATION OF CANADA

The special case of salmon - the most important anadromous species

This paper summarizes the unique position of the various species of salmon in the world of fisheries management. It is submitted to provide the basis in fact and in equity for the development of an appropriate régime for the best use of this valuable resource.

Salmon are unique in returning from the sea to the same fresh waters where they were born, to spawn and leave their fertilized eggs to develop in the same gravel beds. Following hatching, some salmon migrate directly to the sea as small fry; other species must live for one to several years in fresh water lakes or streams.

While salmon grow and mature in the open sea, they occupy the upper layers of cold northern waters where they are not serious competitors for the food supply of other valuable species. In the open sea they are found mainly in areas within the proposed 200-mile economic zones, but also, to a considerable degree, in areas beyond national jurisdiction.

Salmon are the only fish occurring in the open sea which man can and does increase by positive cultural measures. Such measures can be taken only by the State of origin.

Mixed in distant waters, salmon runs separate to return unerringly to their home streams. In distant waters salmon runs which need special protection are mixed with runs which are abundant; only as they approach their home streams (the very streams where they were bred) can the salmon runs be cropped separately and in accordance with the catches each run can support.

Salmon reach their greatest weight as they approach their home streams. During their migrations from the open sea to the spawning grounds, salmon grow faster than they die off. The greatest yield can be obtained by fishing the runs close to their home streams.

Strict regulations are needed to let the right number of spawners through the fishery to the spawning streams. This must be done by assessments of the runs as they appear, and prompt and often drastic restriction of fishing to let the optimum spawning run through. This requires costly supervision and enforcement, as well as co-operation of the fishermen. Only the State of origin of the salmon can carry out this essential function.

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Salmon must have unobstructed access to their spawning grounds, which may be as much as 1,500 miles inland from the sea. This involves heavy direct expenses in removal of natural obstructions (e.g. landslides) and construction of fish passes. There is also much indirect cost to the State of origin in foregoing hydro-electric development, irrigation projects, flood control and other benefits, all of which would involve dams obstructing the passage of salmon. For example, power dams of great potential value have been kept off the Fraser River in British Columbia in order to maintain the productivity of one of the world's great salmon rivers. The State of origin must also protect salmon waters from pollution.

Artificial means of increasing salmon production are becoming ever more effective. Large scale projects to increase salmon production include provision of artificial channels where natural spawning grounds are inadequate, hatcheries to increase the numbers and proportions of fry produced from salmon eggs, and associated facilities for rearing small salmon safe from the enemies and fluctuations in water levels which threaten them in nature. These salmon culture techniques have, in recent years, passed the experimental stage to that of demonstrated effectiveness. In North America alone, hundreds of millions of dollars will be spent in such efforts.

Both the management of the fishery and the development of artificial means of producing more salmon have required and continue to require intensive scientific research. The States of origin of salmon have already spent hundreds of millions of dollars in research on salmon.

Only the State of origin can protect and culture salmon and effectively manage the fishery. All the steps noted above can be carried out only by the State in whose rivers the salmon breed - the State of origin. No other State can see that the right number of salmon get through the fishery to spawn. No other State can keep salmon rivers and lakes unobstructed and unpolluted. No other State can take positive measures to increase salmon production by artificial means such as man-made spawning channels, hatcheries and rearing facilities. Without these effective and costly actions by the State of origin, there would be no commercial salmon runs.

A régime must be found which assures for the State of origin the fruits of its efforts and so encourages it to continue to bear the costs. This requires curtailment of the fishing of salmon on the open sea outside national jurisdictions and co-operation with the State of origin by other States through whose zones the salmon may migrate.
